

Volume 34 Number 2

The Latest Information for the Education Practitioner

# Successful Intelligence:

Robert J. Sternberg

Phi Delta Kappa  
Success Stories  
Member

# Executive Summary

According to the author, we, meaning the United States, are a culture addicted to tests. Our schools have, to a large extent, replaced education with test preparation. While these tests are given in the name of accountability, they represent a very narrow version of it.

Societies stratify socioeconomically by selecting some way (or ways) of achieving differentiation. Typically, those at the top of the status hierarchy devise and perpetuate a system that favors the attributes that got them to the top. Kings, for example, have what must seem to them excellent reasons to promulgate the “divine right of kings.” First-born sons are likely to favor laws of primogeniture, which favor them as heirs.

In the United States, stratification has been accomplished through family wealth, prestige, and even last name. If you came from the right kind of family, you were privileged. Admission to top universities was granted on the basis of privilege, not on test scores or school grades. In the 1960s, things seemed to start to change. Test scores became paramount. For example, average SATs at Harvard University were 100 points per test higher in the 1960s than they were in the 1950s. What changed? Was it that students somehow got smarter? No. What changed was that universities decided that test scores were more important than family wealth and social status.

This article is about how we can develop a broader view of accountability. To do so, we must recognize that current tests serve to stratify our so-

# Contents

Successful Intelligence: Toward a Broader Model for Teaching and Accountability.....	3
On Edge .....	4
Testing Frenzy.....	4
About the Author .....	5
The Successful Intelligence Model.....	7
Objections to Teaching for Successful Intelligence .....	9
Some Instructional Data .....	11
Testing for Successful Intelligence .....	13
Conclusion.....	17
Notes.....	18
NCLB Initiative.....	19

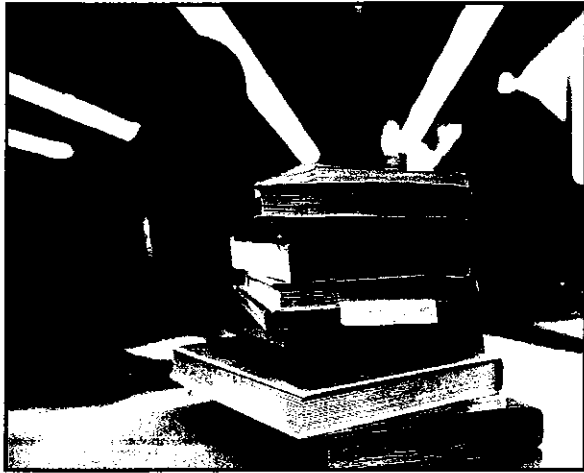
ciety. Schools should be places that optimize education — that provide each student with the best possible education. They should not become test-preparation centers. The conventional model, the author argues, is bankrupt; and so are the means of teaching by it and assessing it. There is another option, which the author describes.



*Edge* is published bimonthly between September and May at Phi Delta Kappa International, 408 North Union Street, P.O. Box 789, Bloomington, Indiana 47402-0789 USA. Online at [www.pdkintl.org](http://www.pdkintl.org).

Editor.....Donovan R. Walling  
Managing Editor.....David M. Ruetschlin  
Designers.....Victoria Voelker, Merridee LaMantia  
Typestylist.....Sheila Way-Middleton  
Copyright © 2006 by Phi Delta Kappa International  
ISSN 1556-6765

*Edge* is a PDK member benefit. Kappans can go to the PDK website, register, log in, and download a free PDF edition as each new issue becomes available. Readers who want paper editions mailed to them may purchase an annual subscription for \$22.95 — for 5 issues. Kappans can buy an annual subscription at the member discount rate of only \$17.95 — a \$5 savings. To subscribe, phone 1-800-766-1156 and pay by credit card. Personal orders accompanied by a check made out to *Phi Delta Kappa International* and institutional purchase orders may be mailed to Phi Delta Kappa International, ATTN: *Edge* Subscription, P.O. Box 789, Bloomington, IN 47402-0789. Purchase orders may be faxed to 812/339-0018.



# Successful Intelligence: Toward a Broader Model for Teaching and Accountability

Robert J. Sternberg

**We** are a culture addicted to tests. Our schools have, to a large extent, replaced education with test preparation. While these tests are given in the name of accountability, they represent a very narrow version of it. This article is about how we can develop a broader view of accountability. To do so, we must recognize that current tests serve to stratify our society.

Societies stratify socioeconomically by selecting some way (or ways) of achieving differentiation. Typically, those at the top of the status hierarchy devise and perpetuate a system that favors the attributes that got them to the top. Kings, for example, have what must seem to them excellent reasons to promulgate the "divine right of kings." First-born sons are likely to favor laws of primogeniture, which favor them as heirs. In the United States, stratification has been accomplished through family wealth, prestige, and even last name (Karabel 2005; Lemann 1999). If you came from the right kind of family, you were privileged. Admission to top universities was granted on the basis of privilege, not on test scores or school grades. In the 1960s, things seemed to start to change. Test scores became paramount. For example, average SATs at Harvard University were 100 points per test higher in the 1960s than they were in the 1950s. What changed? Was it that students somehow got smarter? No. What changed was that universities decided that test scores were more important than family wealth and social status.

But were test scores *really* more important? It depends, of course, on whom you ask. If today you ask a Harvard professor making \$150,000 a year, who had high 700s on his SATs, which was more important, test scores or family wealth, he would likely say test scores. They got him into a great university, ultimately leading to the job at Harvard.

However, if you ask someone successful who dropped out of school what is more important, he is likely to smile ruefully. After all, who has the mansion, the luxury automobile, and sufficient wealth to contribute money to both political parties to ensure that the legislation they pass benefits him and others like him?

The worst part of fixed social stratification systems, whether they rely on testing, family wealth, gender, or some other characteristic, is that they create self-fulfilling prophecies. When I was starting elementary school, the school gave group IQ tests to its students every few years. I did poorly on the test, I believe as a result of test anxiety but perhaps for other reasons as well. The result was that my teachers thought I was stupid. I thought I was stupid. The teachers expected mediocre work from

## What Is Successful Intelligence?

Successful intelligence is the use of abilities to attain success in life, however an individual defines it. Individuals recognize their strengths and make the most of them, and they recognize their weaknesses and correct or compensate for them. They adapt to, shape, and select environments, finding balance by using analytical, creative, and practical abilities.

## On Edge

Robert J. Sternberg begins his article in this month's *Edge* with a truism: "We are a culture addicted to tests." Like most addictions, tests have a "feel good" component, which is why people become addicted to most anything. But, in the end, the negatives of addiction invariably outweigh the positives.

I am reminded of an example of some testing effects that seem counterintuitive: Ball State University researchers Gregory J. Marchant and Sharon E. Paulson recently studied the effect of high school graduation exams on states' graduation rates and aggregated SAT scores and individual students' SAT scores. According to their report, published more than a year ago in the 21 January 2005 issue of *Education Policy Analysis Archives* ([epaa.asu.edu/epaa/v13n6](http://epaa.asu.edu/epaa/v13n6)), "states requiring graduation exams had lower graduation rates and lower SAT scores." Furthermore, "students from states requiring a graduation exam performed more poorly on the SAT than did students from states not requiring an exam." (By the way, partial funding for this study was provided by the Ball State University Chapter of PDK.)

Sternberg is convinced that conventional means of assessment, and therefore instruction, are limited in their scope. He writes, "They risk overvaluing students with certain traditionally valued ability patterns and undervaluing students with other ability patterns that actually may be of greater use in later life." He concludes that the knowledge students demonstrate on most conventional tests is not very important in one's life or career and should not be all that important in school. As a counterproposal Sternberg offers his Successful Intelligence Model.

With the test-driven No Child Left Behind Act reauthorization looming in 2007, Sternberg's analysis and counterproposal are timely and merit serious consideration by thoughtful educators and policy-makers. — DRW



me, and they got it. Thus they were happy that their expectations were met, and I was happy that they were happy. In fourth grade I had a teacher, Mrs. Alexa, who, for whatever reasons, had higher expectations for me. I wanted to make her happy, and I did. I became an A student. But until someone had high expectations for me, I never thought I could be a really good student. When we have narrow views as to what constitutes a smart student, we end up with few students who *look* smart.

Nowadays we have landed on test scores as a primary basis for socioeconomic stratification. Because these scores are highly correlated with socioeconomic position anyway, they provide the appearance of a merit-based justification for the status quo.

## Testing Frenzy

Under the No Child Left Behind Act, test scores have become an end in themselves. Not only students, but also teachers, principals, schools, and school districts are being judged on the basis of test scores. If the tests were of all the competencies we could possibly want students to show, perhaps we would have little to worry about. But they are anything but that. They often are not measures of general achievement but measures of limited aspects of achievement, such as reading and math. Test scores from one statewide mastery test seldom correlate with scores on other tests. And because each state has its own curricular guidelines, the various states may have very different material that they consider essential for students to master. High school diplomas may be withheld because of low scores, and schools that fail to improve adequately may be punished or even taken over by the state government. Consequently, many schools have become test-preparation factories, rather than education institutions.

The No Child Left Behind Act mandates national testing in our nation's schools in order to assess the quality of those schools (see Sternberg 2004, on which this discussion of NCLB is based; see also Robelen 2004). It was a well-intentioned act. The act recognizes the need for accountability in schools, as well as for education practice to be based on scientifically rigorous education research. But it is having, and will continue to have, the opposite effect. The reason is that it flies in the face of much that we know about the science of education. Following are a dozen reasons why NCLB is failing:

*There is no accountability for standards of accountability.* The *New York Times* recently reported that schools are in a state of chaos regarding how they are doing academically. State standards may show the schools to be excelling, but under NCLB they are failing. The problem: There is no clear standard of accountability for the standards of accountability. The standards in the act, despite all the hoopla, are largely arbitrary and potentially punitive. Schools are being held accountable to standards that themselves meet no standard of accountability.

*Schools with children from diverse backgrounds are penalized.* We would like to believe that schools are exclusively responsible for the learning of their students. But years of research have shown that one of the best predictors, if not *the* best predictor, of school achievement is the socioeconomic status of parents. Schools with children of lower socioeconomic status will be at a disadvantage in almost any rigid system of accountability. The same will be true for schools with many children for whom English is a second language.

*Schools with children who have diverse learning skills are penalized.* Schools having many children with learning disabilities or other diverse learning needs almost inevitably will fare poorly in a rigid accountability system that uses a single yardstick for all students.

*Schools are encouraged to cheat.* Because the stakes for high scores are so high, schools are inadvertently encouraged to fudge the data, to give children answers to tests, or to exclude children from testing who, according to the NCLB, should be tested. The result is that schools are now under the same pressure that students feel in high-stakes testing, and they act similarly. They cheat.

*Schools are encouraged to promote dropping out.* Ironically, NCLB inadvertently encourages schools to push their weaker students to drop out. In this way, those students' test scores will not reduce overall scores for the school. Dropouts in low-scoring schools have been increasing, arguably as a direct result of the act.

*What matters with NCLB is what students know, rather than how they use it.* The tests assessing achievement under NCLB largely measure knowledge, rather than how knowledge is used. As a result, the emphasis in schools regresses to "drill-and-kill" instruction. That is, schools are starting to emphasize rote learning again, instead of meaningful understanding and use of knowledge.

## About the Author

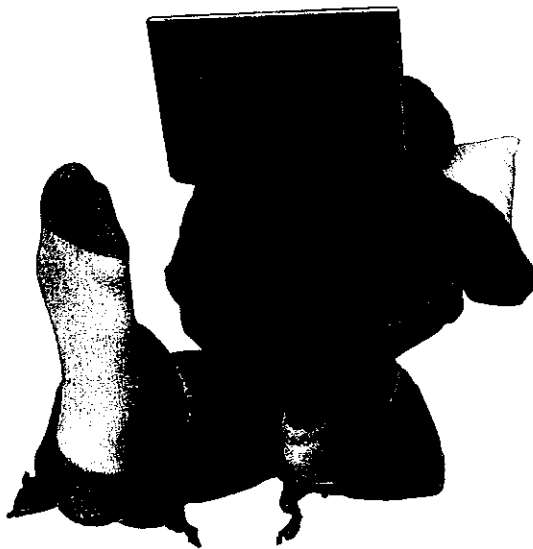
### Robert J. Sternberg

([robert.sternberg@tufts.edu](mailto:robert.sternberg@tufts.edu)) is dean of the School of Arts and Sciences and professor of Psychology at Tufts University. Previously, he was IBM Professor of Psychology and Education and professor of Management at Yale University. Sternberg is president-elect of the Eastern Psychological Association and a former president of the American Psychological Association. He is the recipient of six honorary doctorates and has published more than 1,100 works. His main interests are in intelligence, creativity, wisdom, and leadership.





**In general, anything  
that might enrich  
children's education is  
largely gone.**



*Knowledge of the three R's is supreme under NCLB.* Schools increasingly are emphasizing the traditional three R's: reading, writing, and arithmetic. There is nothing wrong with the three R's. But they are not all that matters to sound education. More and more children are being deprived of learning in art, music, history and social sciences, physical education, special programs for the gifted, and the like. In general, anything that might enrich children's education is largely gone.

*Good science should not be politically guided.* NCLB specifies that education practice be guided by "good," rigorous science. But what is good science? The current Administration, to an unprecedented degree, has decided to play an active role in deciding what it means by "good" science. Some of the science thus supported may indeed be good science. But science has always proceeded best when it has been independent of the political process and when competing schools of thought are left to slug it out on the scientific battlefield free of political influence or interference.

*Conventional tests are a panacea for the nation's education woes.* Relatively few countries use the kinds of multiple-choice and short-answer tests that are so popular in the United States. They believe that such tests can measure only superficial levels of knowledge. There is nothing wrong, in principle, when these tests are used in conjunction with other kinds of tests. But when used alone, they trivialize the testing of children's skills, leading to an advantage for children who are skilled in the kinds of questions that appear on the tests.

*Our schools are being turned into test-preparation courses.* Our schools have become, to a large extent, test-preparation courses. At one time we worried that high schools were becoming test-prep courses for college-entrance tests. Now schools at all levels are enduring the same fate. Worse, scores on one test often do not transfer to another test, so that schools are teaching very specific skills that will be of relatively little use outside the statewide testing program that has promoted them.

*NCLB provides insufficient funding.* The NCLB Act is essentially an unfunded mandate from the federal government. The federal government is now piling up record deficits and is unlikely to provide the funds that NCLB needs to succeed in any form. Many states also are operating in the red. So we find ourselves as a nation stuck with a law that no one can afford.

*NCLB is dividing, rather than unifying, the world of education.* The act, originally passed with bipartisan support, no longer has the support of many Democrats and some Republicans. Moreover, it does not have the support of many of the nation's schools that are being forced to adhere to it. Forcing on schools standards dreamed up by politicians never has been, and never will be, the right way to create the best education for our children.

In sum, NCLB is used to produce the nation's school report card. But NCLB itself receives a failing grade. Schools are being straitjacketed — and straitjackets cannot produce the kind of flourishing education system that our children need and deserve. One is led to ask: Does the nation need a national education-reform act? One could debate the merits of any such act. But if the United States is to have such an act, following are some reasonable suggestions for what it should look like:

- All major stakeholders would have a role in formulating the act, to ensure buy-in from all those who will be affected. The act would not be imposed from above.
- The act would have a clear rationale for its standards of accountability.
- The act's mandates would be fully funded.
- The act would recognize that schools face various situations with regard to skills and the knowledge base of their student body, parental support, funding, educational resources, experience of the teaching staff, and many other variables. These variables would be taken into account in setting expectations.
- The act would give priority to rewarding success, rather than punishing perceived failure.
- The act would recognize the wide range of student accomplishments that are important for success in school and in life — the three R's, but also progress in such fields as the natural and social sciences, the arts, and athletics, among others.
- The act would recognize that achievement is not just about what one knows, but about how one analyzes one's knowledge, applies it, and goes beyond it.
- The act would recognize that the best testing uses a variety of assessments, including conventional assessments and those that emphasize performances and portfolios.
- The act would indeed stress the importance of science to the practice of education, but scientists would decide what constitutes good science —

and we (educators, policymakers, and the public) must recognize that science cannot provide answers to all of the problems faced by schools and teachers.

Schools should be places that optimize education — that provide each student with the best possible education. They should not become test-preparation centers. The conventional model, I would argue, is bankrupt; and so are the means of teaching by it and assessing it. Is there any other option?

## The Successful Intelligence Model

The theory of successful intelligence suggests that students' failures to achieve at a level that matches their potential results from teaching and assessment that are narrow in concept and rigid in implementation. The teaching and testing that have emerged from No Child Left Behind are inadequate. They fail to meet the needs of students (Sternberg 2003a). These kinds of teaching and testing, in essence, shine a spotlight on a small number of students with certain abilities and almost never shine the spotlight on a large number of students who can succeed, but whose abilities do not correspond to the patterns valued by the schools. The solution is to value other ability patterns and then change instruction and assessment so that these other ability patterns can lead to success in school.

*Successful intelligence* is 1) the use of an integrated set of abilities to attain success in life, however an individual defines it within his or her socio-cultural context. People are successfully intelligent by virtue of 2) recognizing their strengths and making the most of them at the same time that they recognize their weaknesses and find ways to correct or compensate for them. Successfully intelligent people 3) adapt to, shape, and select environments through 4) finding a balance in their use of analytical, creative, and practical abilities (Sternberg 1997, 1999, 2003b). Let's consider each element of this theory.

The first element makes clear that there is no single definition of success. For some people success is brilliance as a lawyer; for others it is writing a novel, caring for one's children, or devoting one's life to God. For most people it is a combination of things. Because people have different life goals, education needs to move away from single-target measures of success.

The second element asserts that there are various paths to success, no matter what goal one chooses. Some people achieve success in large part through personal charm, others through brilliance of academic intellect, others through stunning originality, and others through hard work. For most of us, there are at least a few things we do well, and our successful intelligence depends on making these things work for us. At the same time, we need to acknowledge our weaknesses and to find ways either to improve or to compensate. We might simply work hard to develop new skills, or we might join a team so that other people can compensate for what we do not do well.

The third element asserts that success is achieved through a balance of adapting to existing environments, shaping them, and selecting new environments. When we enter an environment — as students and teachers do in schools — we often try to modify ourselves to fit it. In other words, we adapt. But sometimes it is not enough to adapt. We also may need to change the environment to fit us. When our attempts to adapt and to shape fail, we have to leave that environment and find a new one.

Finally, the fourth element is that we balance three kinds of abilities in order to achieve these ends: analytical, creative, and practical. We need creative abilities to generate ideas, analytical abilities to determine whether they are good ideas, and practical abilities to implement the ideas and to convince others of their value. Most people who are successfully intelligent are not equal in these three abilities, but they find ways of making the three abilities work together in harmony.

This definition of successful intelligence contains several implications for teaching (Sternberg and Grigorenko 2000; Sternberg and Spear-Swerling 1996):

*Teaching for analytical thinking requires students to learn to think critically.* Consider some examples of teaching analytically:

- Analyze the development of the character of Heathcliff in *Wuthering Heights*. [Literature].
- Critique the design of an experiment (just gone over in class or in a reading) showing that certain plants grew better in dim light than in bright sunlight. [Biology].
- Judge the artistic merits of Roy Lichtenstein's "comic-book art," discussing its strengths and weaknesses as fine art. [Art]

- Compare and contrast the respective natures of the American Revolution and the French Revolution. [History]
- Evaluate the validity of the following solution to a mathematical problem, and discuss weaknesses in the solution, if there are any. [Mathematics]
- Assess the strategy used by the winning player in the tennis match you just observed, stating what techniques she used in order to defeat her opponent. [Physical Education]

*Teaching for creativity requires teachers not only to support and encourage creativity, but also to model it and to reward it when it is displayed* (Sternberg and Lubart 1995; Sternberg and Williams 1996; Williams et al. 2001). In other words, teachers need not only to talk the talk, but also to walk the walk. Consider some examples of instructional or assessment activities that encourage students to think creatively:

- Create an alternative ending to a short story you just read that represents a different way things might have gone for the main characters in the story. [Literature]
- Invent a dialogue between an American tourist in Paris and a French man he encounters on the street and from whom he is asking directions on how to get to the Rue Pigalle. [French]
- Discover the fundamental physical principle that underlies all of the following problems, each of which differs from the others in the "surface structure" of the problem but not in its "deep structure." [Physics]
- Imagine that the government of China keeps evolving over the course of the next 20 years in much the same way it has been evolving. What do you believe the government of China will be like in 20 years? [Government/Political Science]
- Suppose that you were to design one additional instrument to be played in a symphony orchestra for future compositions. What might that instrument be like, and why? [Music]
- Predict changes that are likely to occur in the vocabulary or grammar of spoken Spanish in the border areas of the Rio Grande over the next 100 years as a result of continuous interactions between Spanish and English speakers. [Linguistics]

*Teaching practically means relating what one teaches to the practical needs of the students, not just to what would be practical for individuals*



other than students (Sternberg et al. 2000). Consider some examples:

- Apply the formula for computing compound interest to a problem that people are likely to face when planning for retirement. [Economics, Math]
- Use your knowledge of German to greet a new acquaintance in Berlin. [German]
- Put into practice what you have learned from teamwork in football to making a classroom team project succeed. [Athletics]
- Implement a business plan you have written in a simulated business environment. [Business]
- Employ the formula for distance, rate, and time to compute a distance. [Math]
- Render practical a proposed design for a new building that will not work in the aesthetic context of the surrounding buildings, all of which are at least 100 years old. [Architecture]

Clearly, it is possible to implement teaching for successful intelligence in a wide variety of academic contexts. But there are potential problems with any new methodology. What are the potential problems for this one?

### **Objections to Teaching for Successful Intelligence**

Following are common objections and replies with respect to the implementation of the techniques I have described:

*Teaching for successful intelligence requires individualization to many patterns of abilities, which is impractical because one cannot know all students' patterns of abilities; and in a large class, one may not know any student's patterns of abilities.* This objection is based on a misunderstanding. Teaching for successful intelligence actually is largely uniform because *all* students need to learn both how to capitalize on strengths and how to correct or compensate for weaknesses. At a given time, instruction may be favoring some students and not others. But over time, it should favor all students about equally. Teaching for successful intelligence stresses maximizing, not equalizing, all students' outcomes. This type of teaching neither assumes equal achievement of students nor aims at eliminating individual differences. Teaching for successful intelligence is a tool devised to ensure content presentation in a number of ways, all of which engage students' diverse patterns of abilities.



**There is no  
single definition of  
success.**

*Teaching for successful intelligence means teaching everything in three ways, and that is impractical. It is impractical to teach everything in three ways, and few if any concepts should be taught all three ways. Rather, teachers should vary their use of analytical, creative, and practical techniques over concepts and over time. On average, roughly equal amounts of time should be devoted to each kind of teaching. But it is neither necessary nor desirable to teach every concept in three ways. The teacher needs to gauge students' needs and understanding and then teach in ways that are appropriate.*

*Teaching for successful intelligence is too novel for most teachers and requires too much effort to implement. When we give workshops on teaching for successful intelligence, one of the first things we emphasize is that all teachers have used most of the techniques at least some of the time. There is relatively little (and for some teachers, nothing) new in teaching for successful intelligence. Good teachers do these things spontaneously or can learn how to do them in short order. Rather, teachers are often out of balance: They emphasize certain kinds of teaching and assessment at the expense of others. Thus the main thing many teachers have to work on is balance, not how to teach in new ways.*

*Exams tend to stress memory for material, and so it really does not make sense to teach in a way that encourages thinking that will prove to be at best irrelevant and at worst detrimental to exam performance. This objection simply is wrong. Teaching for successful intelligence seems to raise student achievement, on average, regardless of subject matter or means of assessment (Grigorenko et al. 2002; Sternberg, Torff, and Grigorenko. 1998a, 1998b).*

*Teaching for successful intelligence is for gifted students (or students with learning disabilities), and I don't teach for gifted students (or students with learning disabilities). This objection is misguided. Teaching for successful intelligence improves learning for all students. Indeed, the students who have been identified as gifted or talented or as having learning difficulties typically are those who already are profiting from accommodations within conventional instruction. All students gain, especially those who may be creatively minded or practically minded and whose talents do not show up with conventional teaching. For example, students from at-risk or challenging environments often *must* develop their practical and creative thinking skills in order to thrive. Teaching for successful intelligence enables students*

to capitalize on these skills, whereas conventional teaching typically does not.

*Teaching for successful intelligence seems applicable to higher level but not lower level courses. Students should learn to think analytically, creatively, and practically at all levels. The techniques can be and have been applied at all levels, including the introductory level (for example, Sternberg 1995). Even the most basic material can be taught in any of the three ways. An additional reason to teach for successful intelligence is precisely that the kinds of thinking required more closely resemble those needed for real-world work. In a conventional course, a student who is a poor memorizer using conventional memory learning may conclude that he or she lacks the skills needed to be a successful historian, biologist, psychologist, geographer, language interpreter, or whatever. In fact, the skills in which he or she is weak may apply mainly to achieving success only in introductory classes. Teaching for successful intelligence thus may enable students to pursue their dreams who otherwise might give up in despair, falsely believing themselves to be incompetent.*

*Teaching for successful intelligence is applicable to small classes but not to large ones. In fact, teaching for successful intelligence may be done at some level in classes of any size. In extreme cases, it may be feasible to give only multiple-choice or short-answer exams if the number of students is large and resources for grading the students' work are few. But having students analyze ideas, come up with their own ideas, and learn how to apply ideas can be done in any course. Teachers can encourage students to think in these ways, and can model these kinds of thinking for the students. Large classes may mean that a teacher can use only certain aspects of teaching for successful intelligence. But approximating full teaching for successful intelligence is better than giving up on it altogether.*

*Teaching for successful intelligence is applicable to only certain subjects. As the above examples show, teaching for successful intelligence is applicable to all subjects.*

*It really makes more sense for a teacher to teach in a way in which he or she is comfortable, and few teachers can claim to excel in all three or even two of analytical, creative, and practical skills. Other teachers will compensate by excelling in other skills. This interpretation of the role of the teacher is designed to make teaching easier, rather than more*

effective. The problem is that students often take only a few introductory classes, and perhaps only one. Thus the students may never get those other teachers with other skills. If students find that they cannot excel in learning the way the introductory teacher prefers to teach, chances are the students will attribute their failure to their own incompetence and never get the chance to find out that they could have succeeded with another teacher and another method of instruction. Teachers have a responsibility to make sure that they maximize the conditions of learning for *all* students, not just for those whose strengths happen to match their own.

*I already do all these things anyway, so I can do what I have been doing without applying a fancy name to it.* If you are already doing all these things, that's wonderful! But our research has shown that there frequently is a discrepancy between what teachers think they are doing and what they actually are doing, as revealed by classroom observations (Spear and Sternberg 1987). Teachers need to make sure they truly are doing these things.

*Students won't like learning analytically, creatively, and practically; or they will find it too hard.* There are always some students who do not like a particular method of teaching. But on average, you will reach more students teaching for successful intelligence. Outside the classroom, students learn in these ways. Now they can learn in these ways inside the classroom as well. There may be an adjustment period at first on the part of students. But our data show that, once they are familiar with these methods of teaching and assessment, students like them more, not less, than traditional methods (Sternberg, Torff, and Grigorenko 1998b).

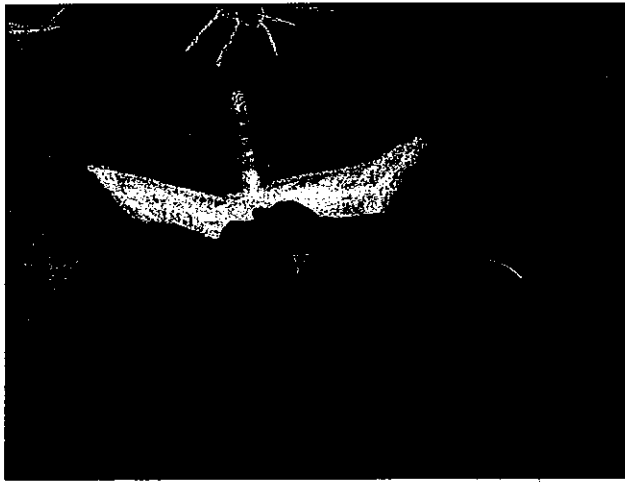
*This is all theory. It won't work.* Our research shows that it *does* work (see Sternberg and Grigorenko 2000, for a brief review). We have found that the best predictor of success is motivation: The techniques succeed if teachers want them to and fail if teachers set things up to fail so that they then can say, "I told you so." Let's see some examples of how it works.

### **Some Instructional Data**

We have sought to test the theory of successful intelligence in the classroom. In a first set of studies, we explored the question of whether conventional education in school systematically discriminates against children with creative and practical strengths (Sternberg and Clinkenbeard 1995; Sternberg, Ferrari,



**Teaching for  
successful intelligence  
is applicable to  
all subjects.**



**The theory of  
successful  
intelligence provides  
one basis for  
improving prediction  
and possibly for  
establishing  
greater equity and  
diversity.**

Clinkenbeard, and Grigorenko 1996; Sternberg, Grigorenko, Ferrari, and Clinkenbeard 1999). Motivating this work was the belief that the systems in most schools strongly tend to favor children with strengths in memory and analytical abilities. However, schools can be unbalanced in other directions as well.

We used the Sternberg Triarchic Abilities Test (Sternberg 1993) in some of our instructional work. It measures analytical, creative, and practical skills in the verbal, quantitative, and figural domains. The test was administered to 326 children around the United States and in some other countries who were identified by their schools as gifted by any standard whatsoever. Children were selected for a summer program in (college-level) psychology if they fell into one of five ability groupings: high analytical, high creative, high practical, high balanced (that is, high in all three abilities), or low balanced (low in all three abilities). Students who came to Yale were then divided into four instructional groups. Students in all four instructional groups used the same introductory psychology textbook (a preliminary version of Sternberg 1995) and listened to the same psychology lectures. What differed among them was the type of afternoon discussion section to which they were assigned. They were assigned to an instructional condition that emphasized either memory, analytical, creative, or practical instruction. For example, in the memory section, they might be asked to describe the main tenets of a major theory of depression. In the analytical section, they might be asked to compare and contrast two theories of depression. In the creative section, they might be asked to formulate their own theory of depression. In the practical section, they might be asked how they could use what they had learned about depression to help a friend who was depressed.

Students in all four instructional sections were evaluated in terms of their performance on homework, a midterm exam, a final exam, and an independent project. Each type of work was evaluated for memory, analytical, creative, and practical quality. Thus all students were evaluated in exactly the same way.

Our results suggested the utility of the theory of successful intelligence in several ways. First, we observed that when the students arrived at Yale, the students in the high-creative and high-practical groups were much more diverse in terms of racial, ethnic, socioeconomic, and educational backgrounds

than were the students in the high-analytical group. This suggested that correlations of measured intelligence with status variables such as these might be reduced by using a broader conception of intelligence. These students, identified as strong, differed from the populations from which they were drawn in comparison to students identified as strong solely by analytical measures. More important, just by expanding the range of abilities measured, we discovered intellectual strengths that might not have been apparent through a conventional test.

Second, we found that all three ability tests — analytical, creative, and practical — significantly predicted course performance. When multiple-regression analysis was used, at least two of these ability measures contributed significantly to the prediction of each of the measures of achievement.

Third and most important, there was an aptitude-treatment interaction whereby students who were placed in instructional conditions that better matched their abilities outperformed students who were mismatched. In other words, when students are taught in a way that fits how they think, they do better in school. Children with creative and practical abilities, who are almost never taught or assessed in a way that matches their abilities, may be at a disadvantage in course after course, year after year.

A follow-up study (Sternberg, Torff, and Grigorenko 1998*a*, 1998*b*) examined learning of social studies and science by third-graders and eighth-graders. The 225 third-graders were students in a very low-income neighborhood in Raleigh, North Carolina. The 142 eighth-graders were students who were largely middle to upper-middle class studying in Baltimore, Maryland, and Fresno, California. In this study, students were assigned to one of three instructional conditions. In the first condition, they were taught the course that basically they would have learned had there been no intervention. The emphasis in the course was on memory. In a second condition, students were taught in a way that emphasized critical (analytical) thinking. In the third condition, they were taught in a way that emphasized analytical, creative, and practical thinking. All students' performance was assessed for memory learning (through multiple-choice assessments) as well as for analytical, creative, and practical learning (through performance assessments).

As expected, students in the successful intelligence (analytical, creative, practical) condition outperformed the other students on the assessments.

One could argue that this result merely reflected the way they were taught. Nevertheless, the result suggested that teaching for these kinds of thinking succeeded. More important, however, was the result that children in the successful intelligence condition outperformed the other children even on the multiple-choice memory tests. In other words, to the extent that one's goal is simply to maximize children's memory for information, teaching for successful intelligence is still superior. It enables children to capitalize on their strengths and to correct or to compensate for their weaknesses. And it allows children to encode material in a variety of interesting ways.

We then extended these results to reading curricula at the middle school and the high school levels. In a study of 871 middle school students and 432 high school students, we taught reading either triarchically or through the regular curriculum. At the middle school level, reading was taught explicitly. At the high school level, reading was infused into instruction in mathematics, physical sciences, social sciences, English, history, foreign languages, and the arts. In all settings, students who were taught triarchically substantially outperformed students who were taught in standard ways (Grigorenko, Jarvin, and Sternberg 2002).

The results of the studies suggest that the theory of successful intelligence is valid as a whole. Moreover, the results suggest that the theory can make a difference not only in laboratory tests, but also in school classrooms and the everyday life of adults.

## Testing for Successful Intelligence

We have sought not only to teach for successful intelligence, but also to test for it. The most important project we have done to date probably is the Rainbow Project.

The Rainbow Project is designed to measure abilities beyond those measured by conventional tests such as the SAT (Sternberg 2005; Sternberg and Rainbow Project Collaborators 2005, in press; Sternberg, Rainbow Project Collaborators, and University of Michigan Business School Project Collaborators 2004). The Rainbow measures supplement the SAT-I. The SAT-I is a three-hour examination currently measuring verbal comprehension and mathematical thinking skills, with a writing component added recently. A wide variety of studies have shown the utility of the SAT as a predictor of col-

lege success, especially as measured by GPA (grade point average).

Data suggest reasonable predictive validity for the SAT in predicting college performance. Indeed, traditional intelligence or aptitude tests have been shown to predict performance across a wide variety of settings. But as is always the case for a single test, or type of test, there is room for improvement. The theory of successful intelligence provides one basis for improving prediction and possibly for establishing greater equity and diversity. It suggests that broadening the range of skills tested to go beyond analytic skills, to include practical and creative skills as well, might significantly enhance the prediction of college performance beyond current lev-



els. Thus the theory suggests not replacing, but *augmenting* the SAT in the college-admissions process. A collaborative team of investigators sought to study how successful such augmentation could be. In the Rainbow Project, data were collected at 15 schools across the United States, including eight four-year colleges, five community colleges, and two high schools.

The measure of *analytical skills* was provided by the SAT plus analytical items of the Sternberg Triarchic Abilities Test (STAT). The analytical items were typical: figuring out meanings of words from context for Analytical-Verbal, number series for Analytical-Quantitative, and matrix completion problems for Analytical-Figural.

*Creative skills* were measured by STAT multiple-choice items and by performance-based items. The multiple-choice items were of the following form:

- *Creative-Verbal*: Novel analogies. Students were presented with verbal analogies preceded by counterfactual premises (for example, "monkeys do not fall off trees"). They had to solve the analogies though the counterfactual premises were true.
- *Creative-Quantitative*: Novel number operations. Students were presented with rules for novel number operations (for example, "flix," which involves numerical manipulations that differ as a function of whether the first of two operands

greater than, equal to, or less than the second). Participants had to use the novel number operations to solve math problems.

- *Creative-Figural*: In each item, participants were first presented with a figural series that involved one or more transformations; they then had to apply the rule of the series to a new figure with a different appearance and complete the new series.

Creative skills also were measured using open-ended measures. One measure required writing two short stories with a selection from among unusual titles, such as "The Octopus's Sneakers"; one required orally telling two stories based on choices of picture collages; and the third required captioning cartoons from among various options. Open-ended performance-based answers were rated by trained raters for novelty, quality, and task-appropriateness. Multiple judges were used for each task, and satisfactory reliability was achieved (details in Sternberg and Rainbow Project Collaborators 2005, in press).

Multiple-choice measures of *practical skills* were obtained from the STAT:

*Practical-Verbal*: Everyday reasoning. Students were presented with a set of everyday problems in the life of an adolescent and had to select the option that best solved each problem.

*Practical-Quantitative*: Everyday math. Students were presented with scenarios requiring the use of math in everyday life (for example, buying tickets for a ballgame) and had to solve math problems based on the scenarios.

*Practical-Figural*: Route planning. Students were presented with a map of an area (for example, an entertainment park) and had to answer questions about navigating effectively through the area depicted by the map.

Practical skills also were assessed using three situational-judgment inventories: the Everyday Situational Judgment Inventory (Movies), the Common Sense Questionnaire, and the College Life Questionnaire, each of which taps different types of tacit knowledge. The general format of tacit-knowledge inventories has been described in Sternberg et al. (2000), so only the content of the inventories used in this study will be described here. The movies presented everyday situations that confront college students, such as asking for a letter of recommendation from a professor who shows, through nonverbal cues, that he does not recognize you. The student then rates various options according to how well

they would work in response to each situation. The Common Sense Questionnaire provided everyday business problems, such as being assigned to work with a co-worker whom one cannot stand. And the College Life Questionnaire provided everyday college situations for which a solution was required.

Unlike the creativity performance tasks, in the practical performance tasks the participants were not given a choice of situations to rate. For each task participants were told that there was no "right" answer, and that the options described in each situation represented variations on how different people approach different situations.

What we found depends on how the data are analyzed. However, the analysis described below is a conservative one that does not correct for differences in the selectivity of the colleges at which the study took place. In a study across so many colleges differing in selectivity, validity coefficients will seem to be lower than is typical, because an A at a less selective college counts the same as an A at a more selective college. When we corrected for college selectivity, the results described below became stronger. But correcting for selectivity has its own problems (for example, on what basis does one evaluate selectivity?), and so I report the uncorrected data in this article.

When examining college students alone, one can see that this sample shows a slightly higher mean level of SAT scores than is found in colleges across the country. Our sample means on the SATs were, for two-year college students, 491 verbal and 509 math, and for four-year college students, 555 verbal and 575 math. These means, although slightly higher than typical, are within the range of average college students.

There is always a potential concern about restriction of range in scores using the SAT when considering students from a select sample of universities,

## Tell Us What You Think

The editors of *Edge* are eager to know what you think of PDK's new bi-monthly magazine. Send your comments, kudos, complaints, and suggestions to [edgecomments@pdkintl.org](mailto:edgecomments@pdkintl.org). We can't promise to answer every e-mail, but we will read them all.

especially when the means run a bit high. However, our sample was taken from a wide range in selectivity of institutions, from community colleges to highly selective four-year institutions. Additionally, the standard deviation (amount of variability) of the SAT scores was comparable to the standard deviation of the SAT tests in the broader population. If anything, an analysis of variance test suggests that the variance for the sample for these items is statistically larger than for the typical population of SAT examinees. For these reasons, the concern of restriction of range of SAT scores across the whole sample is reduced.

Factor analysis is a method of statistical analysis used to ascertain what the basic underlying dimensions are for a set of tests. An exploratory factor analysis (with Varimax rotation) was conducted to explore the factor structure underlying the Rainbow measures. Three meaningful factors were extracted. One factor represented practical performance tests. A second, weaker factor represented the creative performance tests. A third factor represented the multiple-choice tests (including analytical, creative, and practical). Thus, method variance proved to be very important. The results show the importance of measuring skills using multiple formats, precisely because method is so important in determining factorial structure. Multiple-choice tests seem to cluster together, regardless of what they are supposed to measure.

In order to test the incremental validity provided by Rainbow measures and beyond the SAT in predicting GPA, a series of hierarchical regressions was conducted that included the items analyzed above in the analytical, creative, and practical assessments. We found that the Rainbow measures roughly doubled prediction based solely on the SAT. These results were quite impressive. They suggest that prediction of college and presumably earlier school performance can be substantially increased through the use of measures of creative and practical thinking.

Although one important goal of the present study was to predict success in college, another important goal involved developing measures that reduce racial and ethnic group differences in mean levels. There are a number of ways one can test for group differences in these measures, each of which involves a test of the size of the effect of race. We chose two: omega square and Cohen's *D*. Regardless of which measure was used, ethnic-group dif-

ferences were substantially smaller on the Rainbow battery than on conventional tests. Thus the Rainbow measures have the potential for substantially reducing group differences in test scores.

The SAT is based on a conventional psychometric notion of cognitive skills. Using this notion, it has had substantial success in predicting college performance. But perhaps the time has come to move beyond conventional theories of cognitive skills. Based on multiple regression analyses, the triarchic measures alone nearly double the predictive power of college GPA when compared to the SAT alone. In addition, the triarchic measures predict an additional 8.5% of college GPA beyond the initial 14.1% contributed by the SAT and high school GPA. These findings, combined with encouraging results regarding the reduction of between-ethnicity differences, make a compelling case for further study of the measurement of analytic, creative, and practical skills for predicting success in college.

One important goal for the current study, and future studies, is the creation of standardized test measures that reduce the different outcomes between different groups, as much as possible, to maintain test validity. Our measures suggest results toward this end. Although the group differences in the tests were not reduced to zero, the tests did substantially attenuate group differences relative to other measures, such as the SAT. This finding could be an important step toward ensuring fair and equal treatment in the academic domain for members of diverse groups. In a further study (Stemler et al., in press), we showed that we also could substantially reduce differences across ethnic groups by adding creative and practical questions to Advanced Placement tests in psychology, and we could get a slight reduction in Advanced Placement statistics.

Although this first study presents a promising start for the investigation of an equitable yet powerful predictor of success in college, the study is not without its share of methodological problems. Better tests and scoring methods, larger samples, and more representative samples all are needed in future work. Future development of these tests will help sort out some of the problems borne out of the present findings.

To summarize, the theory of successful intelligence appears to provide a strong theoretical basis for augmented assessment of the skills needed for college success. There is evidence to indicate that it has good incremental predictive power and serves to



increase equity. As teaching improves and college teachers emphasize more the creative and practical skills needed for success in school and life, the predictive power of the test may increase. Cosmetic changes in testing over the last century have made relatively little difference to the construct validity of assessment procedures. The theory of successful intelligence could provide a new opportunity to increase construct validity at the same time that it reduces differences in test performance between groups. It may indeed be possible to accomplish the goals of affirmative action through such tests as the Rainbow assessments, either as supplements to traditional affirmative action programs or as substitutes for them.

## Conclusion

Conventional means of instruction and assessment are somewhat limited in their scope. They risk overvaluing students with certain traditionally valued ability patterns and undervaluing students with other ability patterns that actually may be of greater use in later life.

I will close with a story. When I was a freshman in college, I took introductory psychology because I was eager to figure out why I had done so poorly on IQ tests as a child. I received a C in the course. My instructor once commented to me, "There is a famous Sternberg in psychology and it looks like there won't be another one." I was crushed. I decided to switch majors to math. I failed the midterm in the introductory analysis course. So I returned to the psychology major, because now the C looked good.

That was almost 40 years ago. In the meantime, I have been a professor of psychology at Yale and, recently, at Tufts University. Currently I am dean of the School of Arts and Sciences at Tufts. I have been president of the American Psychological Association and of four of its divisions. I have received a doctorate at Stanford as well as six honorary doctorates. Never, in all this time, have I had to take a multiple-choice test based on what I read or heard. The skills I have required are very different from those required by multiple-choice tests. Should I now be required to demonstrate my competence by taking a multiple-choice test? I hope not. The knowledge and skills demonstrated on these tests are not very important in life careers. They should not be all that important in school either.



## Available on Audio Edge

Kappans can visit the PDK website — [www.pdkintl.org](http://www.pdkintl.org) — register, log in, and download the audio version of this article.

Use *Audio Edge* anytime you are on the go and want to fill your ears with the latest information.





## Notes

- Grigorenko, E.L.; Jarvin, L.; and Sternberg, R.J. "School-Based Tests of the Triarchic Theory of Intelligence: Three Settings, Three Samples, Three Syllabi." *Contemporary Educational Psychology* 27 (2002): 167–208.
- Karabel, J. *The Chosen: The Hidden History of Admission and Exclusion at Harvard, Yale, and Princeton*. New York: Houghton Mifflin, 2005.
- Lemann, N. *The Big Test: The Secret History of the American Meritocracy*. New York: Farrar, Straus, and Giroux, 1999.
- Robelen, E.W. "'No Child Law' Remains at Top of Bush Record." *Education Week*, 29 September 2004. <http://www.edweek.org/ew/ewstory.cfm?slug=05bush.h24>. Retrieved 9/29/04.
- Spear, L.C., and Sternberg, R.J. "Teaching Styles: Staff Development for Teaching Thinking." *Journal of Staff Development* 8, no. 3 (1987): 35–39.
- Stemler, S.E.; Grigorenko, E.L.; Jarvin, L.; and Sternberg, R.J. "Using the Theory of Successful Intelligence as a Basis for Augmenting AP Exams in Psychology and Statistics." *Contemporary Educational Psychology* (in press).
- Sternberg, R.J. "Sternberg Triarchic Abilities Test." Unpublished test. 1993. Available from author.
- Sternberg, R.J. *In Search of the Human Mind*. Orlando, Fla.: Harcourt Brace College, 1995.
- Sternberg, R.J. *Successful Intelligence*. New York: Plume, 1997.
- Sternberg, R.J. "The Theory of Successful Intelligence." *Review of General Psychology* 3 (1999): 292–316.
- Sternberg, R.J. "Four Alternative Futures for Education in the United States: It's Our Choice." *School Psychology Quarterly* 18, no. 4 (2003): 431–45. a
- Sternberg, R.J. *Wisdom, Intelligence, and Creativity Synthesized*. New York: Cambridge University Press, 2003. b
- Sternberg, R.J. "Good Intentions, Bad Results: A Dozen Reasons Why the No Child Left Behind (NCLB) Act Is Failing Our Nation's Schools." *Education Week*, 27 October 2004, pp. 42, 56.
- Sternberg, R.J. "Accomplishing the Goals of Affirmative Action – With or Without Affirmative Action." *Change* 37, no. 1 (2005): 6–13.
- Sternberg, R.J., and Clinkenbeard, P.R. "The Triarchic Model Applied to Identifying, Teaching, and Assessing Gifted Children." *Roeper Review* 17, no. 4 (1995): 255–60.
- Sternberg, R.J.; Ferrari, M.; Clinkenbeard, P.; and Grigorenko, E.L. "Identification, Instruction, and Assessment of Gifted Children: A Construct Validation of a Triarchic Model." *Gifted Child Quarterly* 40, no. 3 (1996): 129–37.
- Sternberg, R.J.; Forsythe, G.B.; Hedlund, J.; Horvath, J.; Snook, S.; Williams, W.M.; Wagner, R.K.; and Grigorenko, E.L. *Practical Intelligence in Everyday Life*. New York: Cambridge University Press, 2000.
- Sternberg, R.J., and Grigorenko, E.L. *Teaching for Successful Intelligence*. Arlington Heights, Ill.: Skylight, 2000.
- Sternberg, R.J.; Grigorenko, E.L.; Ferrari, M.; and Clinkenbeard, P. "A Triarchic Analysis of an Aptitude–Treatment Interaction." *European Journal of Psychological Assessment* 15, no. 1 (1999): 1–11.
- Sternberg, R.J., and Lubart, T.I. *Defying the Crowd: Cultivating Creativity in a Culture of Conformity*. New York: Free Press, 1995.
- Sternberg, R.J., and Rainbow Project Collaborators. "Augmenting the SAT Through Assessments of Analytical, Practical, and Creative Skills." In *Choosing Students: Higher Education Admission Tools for the 21st Century*, edited by W. Camara and E. Kimmel. Mahwah, N.J.: Lawrence Erlbaum Associates, 2005.
- Sternberg, R.J., and Rainbow Project Collaborators. "The Rainbow Project: Enhancing the SAT Through Assessments of Analytical, Practical, and Creative Skills." *Intelligence* (in press).
- Sternberg, R.J.; Rainbow Project Collaborators; and University of Michigan Business School Project Collaborators. "Theory Based University Admissions Testing for a New Millennium." *Educational Psychologist* 39, no. 3 (2004): 185–18.
- Sternberg, R.J., and Spear-Swerling, L. *Teaching for Thinking*. Washington, D.C.: American Psychological Association, 1996.
- Sternberg, R.J.; Torff, B.; and Grigorenko, E.L. "Teaching for Successful Intelligence Raises School Achievement." *Phi Delta Kappan* 79 (May 1998): 667–69. a
- Sternberg, R.J.; Torff, B.; and Grigorenko, E.L. "Teaching Triarchically Improves School Achievement." *Journal of Educational Psychology* 90 (1998): 374–84. b
- Sternberg, R.J., and Williams, W.M. *How to Develop Student Creativity*. Alexandria, Va.: Association for Supervision and Curriculum Development, 1996.
- Williams, W.M.; Markle, F.; Brigockas, M.; and Sternberg, R.J. *Creative Intelligence for School (CIFS): 21 Lessons to Enhance Creativity in Middle and High School Students*. Needham Heights, Mass.: Allyn & Bacon, 2001.

# NCLB:

## Making It Work by Making It Better

In light of a century-long commitment by Phi Delta Kappa International to advocate for high-quality, universally available education, the association is working to engage members, chapters, and other concerned educators in an effort to inform the national debate surrounding the pending reauthorization of the No Child Left Behind Act in 2007.

Among upcoming NCLB Initiative activities, PDK will host a Summit on Public Education in Washington, D.C., in October 2006, involving a panel on NCLB moderated by John Merrow (host of "The Merrow Report" on PBS) and follow-up discussions. Participants in the summit and Kappans at home will be encouraged to visit their legislators and to network with others regarding their concerns about the education of America's children.

This fall, the annual PDK/Gallup Poll of the Public's Attitudes Toward the Public Schools will again shine a spotlight on NCLB-related issues. The poll findings will be summarized in the *Phi Delta Kappan*. Other articles addressing NCLB issues have been and will continue to be published in the *Kappan*, *Edge*, and the *PDK Connection*.

PDK also is working to draw attention to issues and themes in NCLB that are similar to education issues that policymakers and educators are addressing in other nations, such as Canada, Ger-



many, France, the United Kingdom, Japan, and elsewhere. The PDK educator-to-educator travel seminar to London this June will incorporate this focus, as will the 2007 Summit on Public Education, scheduled to be held in Vancouver, British Columbia.

This spring PDK issued an Advocacy Call to Action to members and chapters. The association asked Kappans to become better informed about NCLB issues through reading and discussion and to share information with colleagues and others, connecting through various means at local, regional, state, and national levels. Other suggestions for member and chapter involvement in the NCLB Initiative include: conducting local community forums focused on the effects of NCLB and how the law can be improved; gathering firsthand information about NCLB effects by doing field research; writing letters to the editors of local newspapers, contributing OpEd articles, contacting legislators, and speaking



at events to let educators' voices be heard; and designing, implementing, evaluating, and communicating innovative strategies for fulfilling NCLB requirements.

More information can be found online at [www.pdkintl.org](http://www.pdkintl.org).

### Advocacy Resources at [www.pdkintl.org](http://www.pdkintl.org)

*Phi Delta Kappan*

*PDK Connection*

*Edge*

PDK/Gallup Poll

Summit on Public Education

Annual Walk for Education

Position Statements

Background Papers

Advocacy Handbook

Public Forum Manual

Online Research Archives

Information Links

And much more...

WE'RE  
HEATING UP A

SIZZLING SUMMER BOOK SALE!



## Closeouts

MAKE GREAT READING

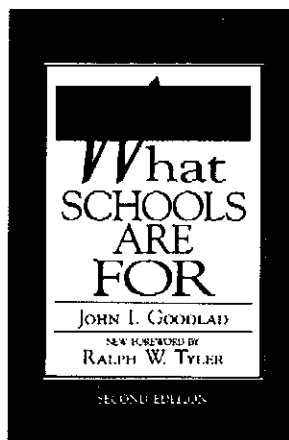
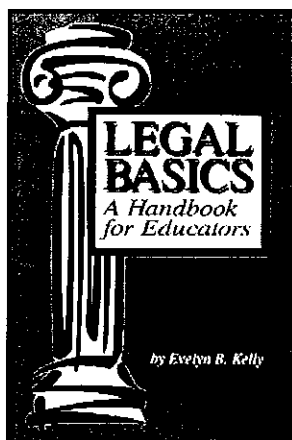
New editions of the following books are in the making, and so we can offer great discount prices as we close out these earlier editions. *Available while supplies last.*

### Legal Basics: A Handbook for Educators

Evelyn B. Kelly

Vital information for teachers and administrators. Emphasizes practical matters pertinent to day-to-day work in schools. Know how to avoid litigation.

120 pages. Trade paperback.  
Was \$10.95 (PDK members,  
\$8.95) Product code: LB  
Now only \$8.95  
(PDK members, \$6.95)



### What Schools Are For, Second Edition

John I. Goodlad

Penetrating analysis of American education. Calls for a thorough re-examination of the purposes of education. Foreword by the late Ralph Tyler.

144 pages. Trade paperback.  
Was \$19.95 (PDK members,  
\$14.95) Product code: WSF2  
Now only \$17.95  
(PDK members, \$12.95)



### EVALUATION OF STUDENT TEACHERS

Developed by PDK and Ball State University. Premier instruments for evaluating student teacher performance. Volumes are oversize, softcover, and spiral-bound, except the Implementation Guide, which is saddle-stitched.

#### Evaluation of Student Teachers Guidebook

Was \$11.95 (PDK members, \$9.95) Product code: ESTG  
Now only \$9.95 (PDK members, \$7.95)

#### Student Teacher's Portfolio Handbook

Was \$9.50 (PDK members, \$7.50) Product code: STPH  
Now only \$7.50 (PDK members, \$5.50)

#### Implementation Guide for Evaluation of Student Teachers

Was \$4.95 (PDK members, \$3.95) Product code: IGEST  
Now only \$2.95 (PDK members, \$1.95)

Check Online for a Special Sale of Fastbacks Soon to Go Out of Print:  
[www.pdkintl.org](http://www.pdkintl.org). Closeout price is only \$1 per copy!

**TO ORDER, PHONE 1-800-766-1156** Send institutional purchase order to Phi Delta Kappa International, P.O. Box 789, Bloomington, IN 47402-0789. Include \$5 shipping and handling on orders up to \$50; from \$50.01 to \$100, add \$10; more than \$100, add \$10 plus 5% of merchandise total. Indiana residents add 6% sales tax. Purchase orders and credit card orders also are accepted by fax at 812/339-5556. E-mail orders to [orders@pdkintl.org](mailto:orders@pdkintl.org) and include all pertinent information. Website: [www.pdkintl.org](http://www.pdkintl.org).

